**Cause-specific mortality among people with a hepatitis C notification: a population-based linkage study, 1993-2012**

Alavi M1, Grebely J1, Larney S2, Hajarizadeh B1, Amin J1, Law MG1, George J3, Degenhardt L2, Dore GJ1

1The Kirby Institute, UNSW Australia, Sydney, NSW, Australia; 2National Drug and Alcohol Research Centre, UNSW Australia, Sydney, NSW, Australia, 3Storr Liver Centre, Westmead Millennium Institute, University of Sydney and Westmead Hospital, Westmead, NSW, Australia

**Background:** In Australia, mortality rates have been rising among people with HCV infection. The aim of this study was to assess cause-specific mortality trends and associated factors among people with an HCV notification.

**Methods:** New South Wales HCV notifications (1993-2012) were linked to cause-specific mortality (1997-2013). For cause-specific mortality, age standardised rates were plotted and associated factors were assessed using Cox regression.

**Results:** The HCV cohort comprised 96,250 individuals. Overall, 9,701 deaths occurred, 24% liver- and 19% drug-related. Among deceased people, median birth year was 1957 (IQR 1947-1965), 43% were Australian-born and 29% had a history of alcohol dependency. During 1997-2012, drug-related deaths increased from 92 to 134 (*P*<0.001) and age-standardised incidence rates declined (23 to 16 per 10,000 person-years, *P*<0.001). During 1997-2012, liver-related deaths increased from 46 to 245 (*P*<0.001) and age-standardised incidence rates remained stable (23 to 19 per 10,000 person-years, *P* 0.999). In the adjusted analysis, drug-related mortality was associated with birth cohort [≥1965, adjusted hazard ratio (aHR) 9.99, 95%CI 5.35-18.66]; male sex (aHR 1.57, 95%CI 1.42-1.74); Australian-birth (aHR 1.23, 95%CI 1.02-1.48); history of alcohol dependency (aHR 1.79, 95%CI 1.61-1.99) and; HCV/HBV co-infection (aHR 1.73, 95%CI 1.43-2.09). In the adjusted analysis, liver-related mortality was associated with birth cohort (1945-1965, aHR 8.39, 95%CI 7.29-9.67); male sex (aHR 1.57, 95%CI 1.43-1.73); history of alcohol dependency (aHR 6.51, 95%CI 5.96-7.12); HCV notification period (≥2009, aHR 5.24, 95%CI 4.42-6.21) and; HCV/HBV co-infection (aHR 1.71, 95%CI 1.44-2.04).

**Conclusion:** Drug-related mortality remains a major cause of death among the younger HCV cohorts. Liver-related mortality burden is rising, underlining the ageing cohort effect, suboptimal HCV treatment uptake and co-factors including alcohol dependency. Lowering mortality rates among people with HCV infection requires comprehensive public health strategies to increase HCV treatment uptake and provide access to behavioural interventions among people with drug and alcohol dependency.

**Disclosure of Interest Statement:** The Kirby Institute is funded by the Australian Government Department of Health and Ageing. The views expressed in this publication do not necessarily represent the position of the Australian Government. None of the authors has commercial relationships that might pose a conflict of interest in connection with this manuscript.